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ABSTRACT

This paper discusses potential uses for simulations and games in communication research and instruction. For research purposes, simulations can be used for increasing coherence within and among theories and for consolidating knowledge. As operational models for the study of interpersonal communication, simulations enable and facilitate the study of certain communication variables under dynamic development. The author cites the variables--commitment, concession, deterrence, threat, promise, and brinkmanship--which benefit most from investigation under dynamic development. In the classroom, simulations can be used to clarify cause-effect relationships. The direct consequence and almost instantaneous feedback characteristics of simulation techniques have great potential for demonstrating concepts which require actual experience. The author cautions against indiscriminate use of "packaged" games and simulations for instructional purposes. Many of the available "packages" unfortunately lack any relation to theory and are for all practical purposes useless. (LG)

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COMMUNICATION VARIABLES APPROPRIATE TO GAMING AND SIMULATION

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COMMUNICATION VARIABLES APPROPRIATE TO GAMING AND SIMULATION

The professional speech journals have shown marked interest in simulations and games during the past four years. No less than thirteen articles have appeared representing all the regional journals and all the national journals.[1] This interest indicates an enthusiastic attempt by a few authors to formulate the role simulations and games might serve in the study of communication processes and encourage the use of simulations and games in the research and teaching of those who specialize in the communication fields.

The purpose of this paper is to stimulate thinking about the use of simulations and games to resolve research and instructional problems when dealing with the communication process. Due to certain limitations, I shall dwell more on identifying potential areas for use of simulations and games by the communication specialist and defer discussion on the philosophical or theoretical contingencies of using simulations and games.[2]

By general definition, a simulation will be considered any representational, dynamic model of a social system.[3] From this definition several important characteristics can be delineated. A simulation as a representational model can only approximate theory in much the same way a model can only approximate theory. A simulation as a dynamic model can be best suited only for those conditions in which operational interactive variables are allowed to function. A simulation as a model of a social system can never stand in <u>total</u> isomorphism to the original system.[4] Yet, in a more positive perspective, simulations are an ideal system for studying the kinds of

conditions that are most common to the speech-communication specialist.

Critical to an understanding of the approach to simulations and games taken in this paper is a fundamental rule of dealing with simulations: Simulations are, at best, disciplined abstractions or simplifications of theory. This tie to theory will be stressed throughout the paper. Simulations and/or games cannot productively operate independent of theoretical frameworks.[5]

For research purposes simulations offer unique advantages to the development of theory. Simulations can be used for increasing coherence within and among theories, thereby enabling scholars to assess gaps and closures in theories. Simulations can be used to consolidate knowledge either to validate or to unite theories. To achieve these advantages, simulations can be adapted to one of three modes: all-computer simulations; man-computer interaction simulations; and all-human simulations.

Without question, both defined advantages of simulations are within the speech-communication scholar's province for research. Some of the more recent theories of conflict and social movements find themselves in a methodological dilemma for which simulation may be an appropriate alternative. Currently, the validity of these theories is based either on anecdotal evidence or empirical testing under restrictive paradigmatic procedures. Without including a procedure for the dynamics of social conflict to develop, there can be little confidence given the explanatory powers of the theories or the basis they give for prediction. For example, in our field neither Bettinghaus' social action model[6] nor Simons' rhetorical movements theory[7] lend themselves to normal validation techniques.

Contrary to the dilemma traditional empirical testing provides, simulation serves as an avenue for the testing of social conflict problems and, in particular, the communication concepts associated with them. Because simulations introduce the needed elements of "vested interest" and "interaction," they are ideally suited to the study of conflict and communication within the conflict setting. Given these two elements, there are a number of general conflict theories that need to be studied. For example, let me refer you to Kenneth Boulding,[8] Lewis Coser,[9] Thomas Schelling,[10] William Gamson,[11] and Ted Robert Gurr.[12]

More specifically, the interaction of elements within the conflict situation and the influence of communication upon conflict and conflict resolution is important for validation of larger theories including rhetorical theories. I mention here such elements as power,[13] authority,[14] legitimation,[15] and influence.[16] I isolate "influence" because of the direct relationship to communication. Consider the subelements of influence as equally important to the study of conflict and equally demanding of the provided characteristics of simulation: persuasion, inducement, and constraint.[17] To each of these elements add variables associated with implicit communication dynamics such as trust, defection, and commitment.[18]

Some experimentation with simulation forms have been used to test variables in conflict situations. Most of the simulation forms have used the "all-human" mode though notable large-scale international conflict studies have used the all-computer mode.[19] The most common form of analyzing conflict is through the use of the Prisoner's Dilemma Game.[20] There is some confusion in comparing results from conflict studies where communication is a variable in the Prisoner's Dilemma. Most notably, the typical use of

the Prisoner's Dilemma disallows open and unimpeded communication among participants, thereby imposing an artificial characteristic of conflict situations and probably contributing to the mixed results.[21] What is called for is not necessarily the elimination of "Prisoner's Dilemma" procedures but, rather, more innovative use of the format by communication specialists.

There are limitations to the Prisoner's Dilemma that other simulations can overcome. In particular, other simulations can give a better environmental framework to represent real-life situations; give greater freedom in the operational definition of central variables of conflict such as cooperation and competition; and most importantly, other simulations can give a more conducive atmosphere for communication analysis. Among the other simulations have been such events as the closely related Deutsch-Krauss Trucking Game[22] to the large-scale "Robbers Cave Experiment" of Muzafer Sherif.[23]

Other interactions than social conflict theory should also be considered by the speech-communication researcher. Most recently, the field has shown special attention to the problems associated with the rhetorical strategies of campaigns and political elections.[24] To some extent, simulations have been developed for studying election processes which may be adaptable to the communication specialist's needs.[25] Others interested in organizational communication will find a broad host of literature and simulations available to aid research efforts.[26]

Because of the innate features of simulations, the most suitable research should be for the study of interpersonal communication. Where two elements indigenous to simulations, "vested interest" and "interaction",

were singled out as ideal for aiding conflict studies, these same two are appropriate for aiding interpersonal communication studies. To the extent "vested interest" and "interaction" call upon interpersonal variables of ego involvement[27] and trust,[28] and to the extent these are difficult variables to validly produce in the laboratory, then the more important the use of simulations becomes to the study of interpersonal communication.

Any variable of interpersonal communication that requires dynamic development within the event in order for that variable to be validly tested is an appropriate variable to study through simulation. Among the interpersonal variables requiring dynamic development are: cooperation and competition, empathy, defensiveness, interpersonal intimacy, self-concept, and role-playing. Among the communication variables most interestingly studied under dynamic development are: commitment, concession, deterrence, threat (cost), promise (reward), and brinkmanship. This, of course, leads back to broader studies of bargaining, negotiation, and coalition theories and, in many ways, to models based on transactional analysis.[29]

A reasonable number of studies have been conducted to study some of these variables[30] and related studies have produced measuring instruments for the study of many of the variables listed here.[31]

I isolate for your attention those studies centering on communication and perception of the communication situation.[32] Three known studies in the speech field have been or are being conducted using simulation or game methodology. Thomas Beisecker studied verbal communication in mixed-motive interaction[32] and Stewart Tubbs studied the relationship between trusting behavior and conformity-inducing messages.[33] My personal research is centering on the relationship between means of influence used,

authorities, and trust of authorities. There is certainly room for other research of interpersonal behavior from a communication framework.[34]

Because this paper identifies only a few areas for study, it is not fair to conclude simulation or game methodology is so limited. Research in areas of public address has been done by simulating through a computer an entire audience for the study of adapting messages to apathetic and neutral audiences.[35] Research in group dynamics has been done by simulating through a computer a group communication network for groups ranging in size to twenty-seven for the study of network channels.[36] Research in group interaction, by Fred Jandt, is being conducted using all-human simulation for the study of conflict and communication.[37]

The use of simulation for research purposes in communication is unlimited but constrained, currently, by two factors. First, simulation methods must be refined and such refinement comes only through use. Second, use of simulations depends on imagination and creativity which comes from the challenge and recognized value of simulations for the study of the communication process.

II

A second, and equally important, functional use of simulation is as an aid to instruction. The advantages of using simulations in the classroom have been referenced elsewhere.[38] Most notably: (1) simulations help clarify cause-effect relationships since actions within the simulation have direct consequences with almost instantaneous feedback; (2) by having instantaneous feedback, simulations provide reinforcement of appropriate and inappropriate actions; (3) simulations give greater satisfaction to "knowing" by creating high levels of motivation and involvement with the model; (4)

simulations give opportunity for controlled practice and implementation of abstract principles; and (5) simulations force participant behavior to be explicit.

These advantages may lead to the conclusion that simulations or games are a "better" instructional tool. Such a conclusion has not conclusively been established. However, simulation is a different tool with specific advantages that could be considered "better" suited for the instructor of communication. These advantages are such inherent characteristics as: group interaction effect; the intrinsically attractive nature of the communication environment over the typical classroom communication pattern; and interpersonal involvement.

As should be obvious from the discussion of research possibilities for interpersonal communication, there is great possibility for demonstrating and experiencing concepts of interpersonal communication in the classroom. In most cases, the same operational models for research are adaptable for classroom use.[39] For general cases, the use of simulation may be the best alternative for the interpersonal communication classroom.

Other courses can utilize simulations effectively. Experience with simulations or games for instructional purposes has been noted for a wide variety of speech courses.[40] Two periodicals provide additional sources of simulations and games in each issue that are often convertable to speech classroom use: Simulations and Games[41] and Simulation/Gaming/News.[42]

Unfortunately, the use of "packaged" games or intriguingly described simulations is a poor way of utilizing the method within the classroom. The tendency of the published literature has been to recommend simulations or games without consideration of the all-important relation of the simulation or game to some theory. The rationale of the literature has been to recommend

a packaged simulation on the basis of contingencies of play and clarity of rules. However, without a union with theory, any simulation is, for all practical purposes, useless.

For example, consider the heavily recommended game of Risk. The play of the game involves imaginary countries competing by war in an attempt to eliminate everyone else from the board. The "winner" is the country remaining after everyone else has been eliminated. The game is recurrently suggested for use in group discussion classes; however, the game itself has nothing to do with either intergroup or intragroup discussion. To the extent Risk relates to theory, the relation is provided outside, artifically, to the game dynamics. As commonly used, Risk is a hollow game providing only the environment for the simulation but guiding none of the discussion behavior within the environment. All the behavior, in terms of discussion or group theory, is outside of the characteristics of the game.

What probably leads communication instructors to this inappropriate use of simulations and games is that all games appear usable because all games utilize communication in some form or another. Yet, communication takes place within a context and caution must be exercised in choosing a game to be sure that the context does not dominate and distract from the theory being imparted. To date, published articles in the speech literature have been inadequate to aid the instructor determine the communication variables appropriately drawn out by the simulation. Much of the dissatisfaction and failure from instructional use of simulations can be traced to the random rather than systematic selection of the most purposeful simulation for an intended objective.

The purpose of this paper has been to stimulate thinking about the potential of simulation methods for research and instructional purposes. Simulations are a method uniquely conducive to the needs of the communication specialist interested in studying process and interaction. The missing ingredients to date have been imagination and utilization.

FOOTNOTES

[1]Thomas Beisecker, "Game Theory in Communication Research: A Reaction and Reorientation," Journal of Communication, 20 (1970), 107-120; Thomas Beisecker, "Verbal Persuasive Strategies in Mixed-Motive Interactions," Quarterly Journal of Speech, 56 (April, 1970), 149-160; William Bennett, "Conflict Rhetoric and Game Theory: An Extrapolation and Example," Southern Speech Communication Journal, 37 (1971), 34-46; Robert Bostrom, "Game Theory in Communication Research," Journal of Communication, 18 (1968), 369-388; William Brooks, "Innovative Instructional Strategies for Speech Communication," Today's Speech, 20 (Fall, 1972), 39-47; William Gordon, "Academic Games in the Speech Curriculum," Central States Speech Journal, 20 (Winter, 1969), 269-279; William Gordon, "Rhetoric-Communication Concepts Illustrated by Several Academic Games: Metaphor and Mystique at Play," Today's Speech, 19 (Summer, 1971), 27-33; Cal Hylton and William Lashbrook, "Apathetic and Neutral Audiences: A Computer Simulation and Validation," Speech Monographs, 39 (June, 1972), 105-113; Fred Jandt, "Sources for Computer Utilization in Interpersonal Communication Instruction and Research," Today's Speech, 20 (Spring, 1972), 25-31; John Kline, "Communication Games: A Plea for Isomorphism with Theory," Western Speech, 36 (Summer, 1972), 181-186; Dale Leathers, "The Process Effects of Trust-Destroying Behavior in the Small Group," Speech Monographs, 37 (1970), 180-187; Stewart Tubbs, "Two-Person Game Behavior, Conformity-Inducing Messages and Interpersonal Trust," Journal of Communication, 21 (December, 1971), 326-341; and Raymond Tucker, "Computer Simulations and Simulation Games: Their Place in the Speech Curriculum," Speech Teacher, 17 (March, 1968), 128-133.

[2]Due to time limitation given to the presentation of this paper, some detail and further references will be given in footnotes.

[3]Harold Guetzkow, "A Use of Simulation in the Study of Inter-Nation Relations," Behavioral Science, 4 (1959), 184.

[4]For a brief discussion of the limitations of models for research use, see: George Mandler and William Kessen, "The Use of Models and Analogies," reprinted in Speech Communication Behavior, Larry Barker and Robert J. Kibler (eds) (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1971), 52-57. For a discussion of models as related to simulations, see Stanely Winkler, "Computer Simulation -- Gospel, Guidance, or Garbage," Cybernetics, Simulation, and Conflict Resolution, D. Knight, H. Curtis, and L. Fogel (ed) (New York: Spartan Book, 1971), 171-190.

[5]See John Kline, "Communication Games: A Plea for Isomorphism with Theory," Western Speech, 36 (Summer, 1972), 181-186.

[6]Erwin Bettinghaus, Persuasive Communication, (Holt, Rinehart, and Winston, New York, 1968), 256-278.

[7]Herbert Simons, "Requirements, Problems, and Strategies: A Theory of Persuasion for Social Movements," Quarterly Journal of Speech, 56 (February, 1970), 1-11.

[8]Kenneth Boulding, Conflict and Defense: A General Theory (New York: Harper and Brothers, 1962). Boulding lists several conflict models.

[9]Lewis Coser, The Functions of Social Conflict (New York: The Free Press, 1956).

[10]Thomas Schelling, The Strategy of Conflict (London: Oxford University Press, 1960).

[11]William Gamson, Power and Discontent (Homewood, Illinois: The Dorsey Press, 1968).

[12]Ted Robert Gurr, Why Men Rebel (Princeton: Princeton University Press, 1970).

[13]See J. W. Thibaut and H. H. Kelley, The Social Psychology of Groups (New York: John Wiley and Sons, 1959); and J. C. Harsanyi, "The Measurement of Social Power," Behavioral Science, 7 (1962), 67-72; and John R. P. French, Jr., "A Formal Theory of Social Power," Psychological Review, 63 (May, 1956), 181-194.

[14]See Max Weber, The Theory of Social and Economic Organization, (Oxford: Oxford University Press, 1947); and Charles Kiesler and Sarah Kiesler, Conformity (Reading, Massachusetts: Addison-Wesley Co., 1969), Chapter 2.

[15]See Peter Berger, The Sacred Canopy: Elements of a Sociological Theory of Religion (Garden City, New York: Doubleday, 1967); Bertram Raven and A. W. Kruglanski, "Conflict and Power," The Structure of Conflict, Paul Swingle (ed) (New York: Academic Press, 1970), Chapter 3.

[16]See: Dorwin Cartwright, "Influence, Leadership, Control," Handbook of Organizations, ed by James G. March (Chicago: Rand McNally and Co., 1965), 1-47; Talcott Parsons, "On the Concept of Influence," Public Opinion Quarterly, 27 (1963), 37-62; and Gamson.

[17]A commonly defined constraint is coercion. For an interesting study of coercion as a form of conflict resolution see: Herbert W. Simons, "Persuasion in Social Conflicts: A Critique of Prevailing Conceptions and a Framework for Future Research," Speech Monographs, 39 (November, 1972), in press.

[18]Schelling, 134-150.

[19]Guetzkow, 183-191.

[20]For an explanation of Prisoner's Dilemma see R. Duncan Luce and Howard Raiffa, Games and Decisions, (New York: John Wiley and Sons, 1957), 95.

[21]For fuller discussion of the role of communication in the Prisoner's Dilemma see: Anatol Rapoport and C. Orwant, "Experimental Games: A Review," Behavioral Science, 7 (1962), 1-37; Harvey Wichman, "Effects of Isolation and Communication on Cooperation in a Two-Person Game," Journal of Personality and Social Psychology, 16 (1970), 114-120.

[22]Morton Deutsch and R. M. Krauss, "The Effect of Threat Upon Interpersonal Bargaining," Journal of Abnormal and Social Psychology, 61 (1960) 181-189; and M. Deutsch and R. Krauss, "Studies of Interpersonal Bargaining," Journal of Conflict Resolution, 6 (March, 1962), 52-76.

[23]Muzafer Sheif, et al., Intergroup Conflict and Cooperation: The Robbers Cave Experiment (Norman: University of Oklahoma, 1961).

[24]See: David Swanson, "The New Politics Meets the Old Rhetoric: New Directions in Campaign Communication Research," Quarterly Journal of Speech, 58 (February, 1972), 31-40; Herbert Simons, James Chesebro, Jack Orr, [untitled article on the 1972 Election Campaign for publication in the April issue of Quarterly Journal of Speech, 1973].

[25]I. Pool, R. Abelson, and A. Popkin, Candidates, Issues and Strategies, (Cambridge: MIT Press, 1964).

[26]D. G. Malcom, "Bibliography on the Use of Simulation in Management Analysis," Operations Research, 8 (1960), 169-177.

[27]For a brief review of the position of ego involvement to the interpersonal relationship as well as a description of general studies of ego involvement see C. David Mortensen, Communication: The Study of Human Interaction, (New York: McGraw-Hill Book Co., 1972), 163-167.

[28]Several sources dealing with the dynamics of the variable "trust" are listed throughout the paper. The best source for an understanding of "trust" as used for this paper can be found throughout Thomas Schelling, The Strategy of Conflict. See also, Paul Watzlawick, Janet Beavin, and Don Jackson, Pragmatics of Human Communication (New York: W. W. Norton and Co., Inc., 1967), 223-229.

[29]Some of the transactional models seem readily adaptable to simulation. See, in particular,: Eric Berne, Games People Play, (New York: Grove Press, Inc., 1964); and Erving Goffman, Strategic Interaction (New York: Ballantine Books, 1969).

[30]The following reports use dynamic interaction as the methodology for a study of the indicated variables: (promise) Gary Evans, "Effect of Unilateral Promise and Value of Rewards Upon Cooperation and Trust," Journal of Abnormal and Social Psychology, 69 (1964), 587-590; (cost and reward) L. P. Frankfurt, "The Role of Some Individual and Interpersonal Factors on the Acquaintance Process," Diss. American University 1965; (cooperation and competition) Tubbs; (role-playing) Melvin Guyer and Anatol Rapoport, "Information Effects in Two Mixed-Motive Games," Behavioral Science, 14 (1969), 467-482; (commitment) Dalmas Taylor, I. Altman, R, Sorrentino, "Interpersonal Exchange as a Function of Rewards and Costs and Situational Factors: Expectancy Confirmation-Disconfirmation," Social Psychology, 5 (1969), 324-339; (threat) Harold Kelley, "Experimental Studies of Threats in Interpersonal Negotiations," Journal of Conflict Resolution, 9 (1965), 79-105; (brinkmanship) Anatol Rapoport and Albert Chammah, "The Game of Chicken," American Behavioral Scientist, 10 (November, 1966), 23-28.

[31]The following research reports define instruments for measuring the indicated variables: (empathy) Robert Carkhuff, Helping and Human Relations, Vol. I, (New York: Holt, Rinehart, and Winston, 1969) [the Overall Facilitative Functioning Scale]; (interpersonal intimacy) D. A. Taylor and I. Altman, "Intimacy-Scaled Stimuli for Use in Studies of Interpersonal Relations," Psychological Reports, 19 (1966), 729-730; (self-actualization) William Martin, "Self Perception Inventory: A New Test of Personality," Psychological Reports, 23 (1968), 961-962; (self-concept) Rae Carlson and Nissim Levy, "Brief Method for Assessing Social-Personal Orientation," Psychological Reports, 23 (1968), 911-914; (trust) Kim Giffin, An Experimental Evaluation of the Trust Differential. Research Monograph P/19 (Lawrence, Kansas: The Communication Research Center, The University of Kansas, 1968).

[32]See: Harold Kelley and Anthony Stahelski, "Social Interaction Basis of Cooperators' and Competitors' Beliefs About Others," Journal of Personality and Social Psychology, 16 (1970), 66-91; Vello Sermat, "Is Game Behavior Related to Behavior in Other Interpersonal Situations?" Journal of Personality and Social Psychology, 16 (1970) 92-109; I. D. Steiner, "Interpersonal Behavior as Influenced by Accuracy of Social Perception," Psychological Review, 62 (1955), 268-274; Harvey Wichman, "Effects of Isolation and Communication on Cooperation in a Two-Person Game," Journal of Personality and Social Psychology, 16 (1970), 114-120.

[33]Beisecker, "Verbal Persuasive Strategies in Mixed-Motive Interactions."

[34]Tubbs.

[35]Hylton and Lashbrook, op. cit.; William Lashbrook and Jean Sullivan, "Apathetic and Neutral Audiences: More on Simulation and Validation," (unpublished manuscript, Normal, Illinois: Illinois State University, 1972); and William Lashbrook, "Program ARISTOTLE: A Computerized Technique for the Simulation and Analysis of Audiences," (San Jose, California: Department of Speech-Communication, San Jose State College, March 1, 1970).

[36]William McWhinney, "Simulating the Communication Network Experiments," Behavioral Science, 9 (1964), 80-84.

[37]Fred E. Jandt, "Interactive Synecology: A Simulation for the Study of Conflict and Communication," Conflict Resolution Through Communication. (New York: Harper and Row, 1973).

[38]See Clark Abt, Serious Games, (New York: Viking Press, 1970); Sarene Boocock and E. O. Schild (eds) Simulation Games in Learning, (Beverly Hills, California: Sage Publication, Inc., 1968); Ronald Klietsch, An Introduction to Learning Games and Instructional Simulations, (Newport, Minnesota: Instructional Simulations and Co., 1969); and Brooks, p. 40.

[39]See Herbert W. Simons, F. N. Smith, and T. E. Harris, "Persuasion in Social Conflict," (short course material presented at Speech Communication Association Convention, Chicago, Illinois, December 27, 1972); and Thomas E. Harris and Robert M. Smith, "Methods for Introducing Analysis of Conflict Theory," (unpublished paper, Department of Speech, Temple University, Philadelphia, Pennsylvania, December, 1972).

[40]See: Gordon, "Academic Games in the Speech Curriculum; Jandt, "Sources for Computer Utilization in Interpersonal Communication Instruction and Research,"; Tucker.

[41]Sage Publications, Beverly Hills, California.

[42]Stanford University, Stanford, California.